

*welcome to the world*

*of*



*do-it-yourself electronics*



*a guide for first-time kit builders*



***from parts . . . to product***

***with no special skills or knowledge required***

***all you need are these simple tools . . .***



***and a desire to try something  
excitingly new — uniquely different***



*... an idea that captured  
the minds of millions*



All of man's progress has stemmed from ideas, ideas held by men and women who pioneer new concepts. The provocative ideas of yesterday are the realities of today that make our daily tasks easier, our lives more interesting.

The idea held by the pioneers of the Heath Company was an unusual concept.

It was that anyone without experience, but with the right guidance, could build electronic equipment from pre-planned kits of parts. The Heathkit idea spread rapidly and captured the imaginations of millions of people, for here for the first time was a way to fulfill the need for electronic equipment of superior performance that everyone could afford, here was an activity offering fun, relaxation, a sense of achievement and tangible results.



*... everyone builds them ...*



Those millions whose imaginations have been stirred by the Heathkit idea include men, women and children the world over. They include people who had no previous experience, but who nevertheless have successfully built Heathkit equipment.

The Heath customers include workers in industry, men in the factories, the offices, the mines, professional men from doctors to merchant chiefs, women in business and at home, youngsters of all ages.

Each of our customers has a different cultural background, a different educational background, yet each has found in Heathkit equipment a satisfying answer to his need.

# *thousands of beginners prove you can too*

MR. J.A., FRESNO, CALIF.: "This was the first time I have ever assembled any type of electronic equipment (Ignition Analyzer). I must say never have I found instructions so easy to follow step by step. The unit was completed so quickly that I couldn't believe my success."

DR. A.W., SANTA MONICA, CALIF.: "Frankly, I was amazed and delighted with the ease and speed with which the work progressed. Each step was so graphically explained that even a rank amateur such as myself had not the slightest bit of trouble. The entire kit . . . from packaging to finished component is beautifully engineered. I am thrilled with the results."

L.B., CINCINNATI, OHIO: "I am 13 years old and had no help in assembling the (Shortwave Receiver). The instructions were very clear and precise. I was quite surprised when I turned the unit on for the first time and it functioned perfectly."

MR. R.R., SHAWNEE MISSION, KAN.: "Being a layman in anything electronic, I was somewhat skeptical of my ability to obtain desired results. However, I had absolutely no trouble whatever. The assembly manual left nothing to doubt."

MR. J.A., OROVILLE, CALIF.: "This was my first experience with electronic kit building and you can be proud of the product you sell. The instructions were very clear and the construction made simple by thorough engineering. The GR-54 shortwave receiver is a beautiful set to look at, and the performance is beyond my expectations."

E.W., PHILADELPHIA, PA.: "I had never put together any kind of kit like this before and know almost nothing of electronics. Needless to say it was with great trepidation that I began to work. I've never had so much fun. Your simple directions on soldering had me producing perfect connections every time. Everything was very easy to follow. I didn't really expect it to work but it worked perfectly and the good quality of the sound amazes me."

MR. A.D., KANSAS CITY, MO.: "Before I ordered this kit (FM Tuner) from you, my ignorance of anything electronic was monumental. It still is, but my satisfaction with and faith in your products and step-by-step assembly instructions is absolute. I'm not just pleased, I am tickled pink."

MRS. G.D., JACKSON, MICH.: "This was my first experience with assembling one of your kits and while I was somewhat dubious about my ability to do so at my age (74) I found it surprisingly simple and very fascinating to follow the step-by-step instructions in your assembly manual. When I finished the assembly the results surprised me for I could tune in on broadcasts from many parts of the world."

J.S., WEAVER, ALABAMA: "I am eleven years old and had no help in assembling the kit (Shortwave Radio). It was very easy to assemble yet I have never had any experience in soldering or intricate and exacting work. Your kits are indeed the finest in parts and ease of assembly."

MRS. J.G., BETHESDA, MD.: (Heathkit Color TV owner) "If a housewife with three children under 4 years of age can successfully build it in her few spare moments, it has to be good."

MR. D.C., WAYNESBORO, VA.: "This was my first experience in kit building and the ease with which this kit (Shortwave Radio) went together amazed me. I think the reason for the ease of assembly is because of the excellent manual that was included with the kit. This instruction booklet was clear and concise about the construction of the kit and contained many helpful diagrams to aid the builder. Another thing I found was the consistent quality in the parts and workmanship of the preassembled equipment which came with the kit."

MR. R.F., NEW ROCHELLE, N. Y.: "I managed to assemble it (Stereo Receiver) with the very complete instructions of the step-by-step manual which was amazing in itself, for I have never done any work of this type before. The thing that amazed me most was that when I plugged the line cord in it really worked."

DR. A.V.S., PHILADELPHIA, PA.: "Several months ago I purchased your (FM Tuner and Amplifier). Never having built a kit before, it was with some trepidation that I undertook the task. I honestly expected fire and sparks to fly, when plugging the units in for the first time. Not only did that not happen, but both units functioned perfectly."



# *benefits for you*



## ***creative satisfaction***

There are many reasons for building Heathkit electronic equipment, but one of the most important according to our customers is the great personal satisfaction in doing so. It offers a creative outlet with a true feeling of achievement, a chance to explore new concepts, an opportunity to create something wholly different from the usual hobby fare. It's why we say Heathkit equipment is as much fun to build as to use.

## ***superior performance***

Many build Heathkit equipment to get superior quality and performance . . . quality and performance which equals and often exceeds that of ready-built equipment costing much more. This superiority is a fact recognized by owners, electronic experts, and leading testing organizations. It is superiority by intent . . . through advanced designs and better parts.

## ***substantial savings***

Many build Heathkit equipment to save money. These savings come about in several ways . . . the purchase price of your kit will be 30% to 50% below that of comparable factory built equipment . . . or, as in the case of some kits, such as our Color TV's, you pay no more than what an ordinary "price leader" factory built unit would cost, yet you get a kit which when completed will have the features and performance of "top of the line" models. It is known world wide that you get more for your money with Heathkit electronics.

# read what Heathkit® owners say about . . .

## *satisfaction*

MR. R.H., INGLESIDE, ILL.: "Just an unsolicited testimonial as to what I think is a very outstanding job that your company has done putting this Thomas transistor organ in kit form. The step-by-step directions furnished were very clear and precise. I certainly recommend this organ in kit for anyone with a little patience and love for music all wrapped up in a beautiful piece of furniture for their home."

MR. D.F., WILLIAMSON, N. Y.: "It is my personal opinion that Heathkits fill a real need in that they make it possible for many to own electronic equipment of high quality at relatively low cost."

MR. J.L., LOS ANGELES, CALIF. (about his Heathkit amplifier): "It's construction details, its excellent chassis layout, its good looks, and wonderful performance (as well as versatility and ease of operation) have left me little more to desire."

## *performance*

MR. A.M., BRONX, N. Y.: "The quality of the amplifier greatly exceeded my wildest dreams. It is truly unbelievable. I never expected that such realism could be obtained."

MR. B.P., PHILA., PA.: "For the first time in my amateur career I was able to tune sideband with the ease of AM. The quality and audio response is terrific. I sure can see the amount of thought and engineering that went into this quality receiver (Heathkit SB-300)."

MR. R.W., SAN BRUNO, CALIF.: "I recently completed my GR-295 color TV, which incidentally is my fifth Heathkit. I must say that I was repeatedly impressed by the quality of these items and their performance."

MR. J.N., CHAPEL HILL, N. C.: "My friends tell me the color is better than they have seen on sets costing \$895, and I must say that I agree."

## *savings*

MR. B.L., LONG BEACH, CALIF.: "Reception on our Heathkit color set is superior to any other color set I have seen regardless of price."

MR. A.F., METAIRIE, LA.: "Your, that is my AA-14 stereo amplifier is unreal! For 2 weeks I've been trying to find other units to equal it in performance but gave up yesterday when I heard a \$1000.00 unit in a hi-fi house. It's pretty hard to believe, but the only difference in mine and that monster was loudness (and price)."

MR. A.T., HOUSTON, TEXAS: "I made side by side comparisons with a receiver which was commercially built, and I have one conclusion. Why pay over twice as much for a receiver which is no better than the (Heathkit) SB-300."

MR. D.M., FT. COLLINS, COLO.: "I have but one word concerning your Heathkit Amplifier AA-14; WOW! I must confess it sounds just as good as my roommate's \$350 receiver."

# read what electronic experts say . . .

HUBERT LUCKETT, EXECUTIVE EDITOR, POPULAR SCIENCE MAGAZINE: "For those who tremble at the thought of tackling something so fantastically complicated, (color TV), let me encourage you with a borrowed quote: 'The only thing you have to fear is fear itself!' The second most impressive thing about the kit is the instruction manual (the most impressive thing is the viewing quality of the color picture). '—the circuitry, features and performance match or exceed those of sets selling at twice the price. Some of the features such as the built-in servicing aids, can't be bought in ready-made sets at any price.'"

JULIAN HIRSCH, NOTED AUDIO CRITIC, / STEREO REVIEW: "Heath in their literature implies strongly that the AR-15 represents a new high in ad-

vanced performance and circuit concepts. After testing and living with the AR-15 for a while, we must concur. Several people have commented to us that, for the price of the AR-15 kit, they could buy a very good manufactured receiver. So they could—but not one that would match the superb overall performance of the Heath AR-15."

AUDIO MAGAZINE REVIEWS THE AR-14: "Although it's seldom the policy of this department to use superlatives in describing any individual piece of equipment, this is one time when it is possible to say that the unit in question is undoubtedly one of the best values we have encountered to date. For where else can one obtain an FM-Stereo receiver at such a price? And the

low price has not been reached by an apparent sacrifice in quality."

RADIO-ELECTRONICS MAGAZINE: "Compared with other tuners the Heath AJ-33A gives the impression that it will get any station that can possibly be pulled in. Dead fringe areas prove to be not so dead as other tuners would have us believe! The quality is indistinguishable from high quality record reproduction."

MR. P.S., RADIO & TV CLINIC, HACKENSACK, N. J.: "Your engineers did an outstanding job in designing a set so easy to build, and which produces a picture quality superior to any commercially built set I have ever seen. What a thrill to find the set operating perfectly the first time I turned it on and adjusted the picture."



# ...designed to be beginner built

## *everything explained — everything included — nothing left to chance*

The fact that the majority of Heathkit customers are beginners who successfully complete their project will reassure you about your own capabilities. Heath engineers are still firmly devoted to the principle, established years ago by the founders of

### ***each kit contains:***

#### ***1. Kit Builder's Guide***

This handy little booklet tells you exactly how to proceed in building your kit . . . the simple tools needed . . . how to identify and install parts . . . how to solder correctly. It has a wealth of information you will appreciate while building . . . and after.

#### ***2. Heathkit Assembly Manual***

Specifically written for your kit, the assembly manual leads you a simple step at a time to successful completion of your project. Recognized throughout the world as a fine example of written instructions, these manuals describe and illustrate in simple, nontechnical language exactly what to do and how to do it.

#### ***3. All parts needed***

You'll be impressed with the quality and completeness of your kit's parts. Packed in each kit are all the parts to build it, right down to the last nut and bolt . . . everything you need to make your kit operate. Also included are some handy construction aids and an ample amount of solder.

Heath, that every kit be so easy to assemble that all that is necessary to be successful is to follow the instructions . . . no special skills or background is needed.





*...shows you...*

## ***How to solder correctly, easily***

Learning to solder properly is easy. The Builder's Guide included with each kit describes the simple steps involved and illustrates them so you can see exactly how to do it. You'll find it easy . . . see the examples below.

### ***on point-to-point wiring***



**1.** Attach the end of the wire to the terminal.



**2.** Place a flat side of the soldering iron tip against the wire and the terminal.

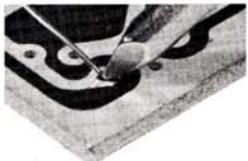


**3.** Place the solder against the connection; the solder will melt and flow into the connection.



**4.** Remove the solder, and then the iron from the connection. A good solder joint should look smooth and bright.

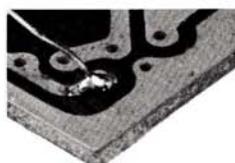
### ***and on circuit boards***



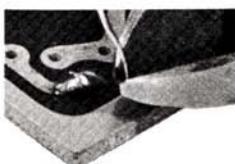
**1.** Place the tip of the soldering iron firmly against the circuit board foil and the wire or lug to be soldered.



**2.** Touch the solder to the iron, the foil, and the wire at the point where they meet. Remove the solder as soon as it begins to melt and flow onto the foil and wire; then remove the iron.



**3.** Check the connection; a good solder joint should look smooth and bright, and the solder should adhere evenly to both the wire and the foil.



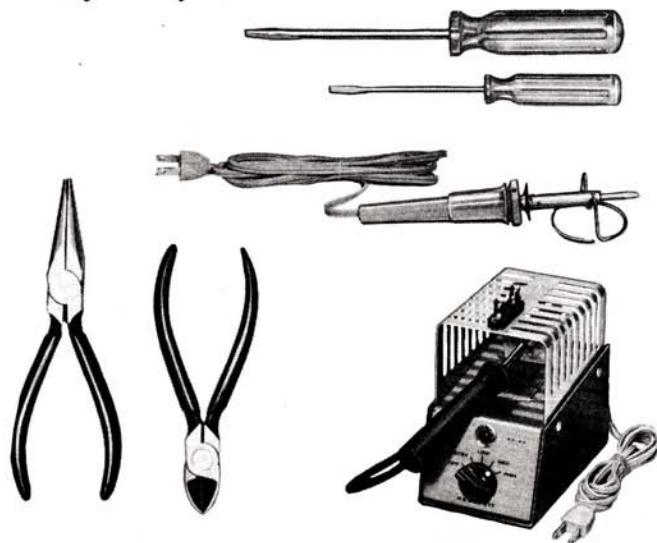
**4.** After the solder has hardened, clip off the wire close to the foil.



*... shows you ...*

### ***How to select tools***

The tools you need to build your kit are simple and inexpensive . . . a screwdriver, long nose pliers, diagonal cutter, and a soldering iron are all that are required. Other tools you may find useful are a wire stripper and a set of nut drivers. The kit builder's guide illustrates and describes various tools you may select.



### ***How to unpack your kit***

The kit builder's guide suggests ways to group smaller parts to keep them readily at hand. Your kit's assembly manual will tell you which package of parts is needed in each subassembly . . . in this way you have before you only those parts needed for each section, a process which permits working in a smaller space with accuracy and speed.

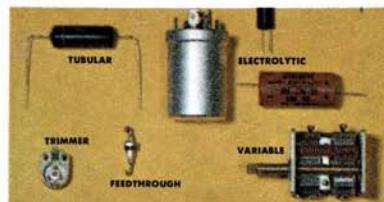
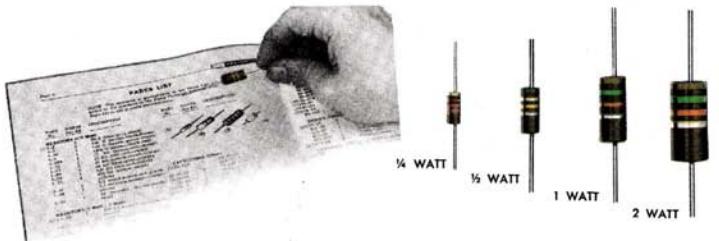




*... shows you ...*

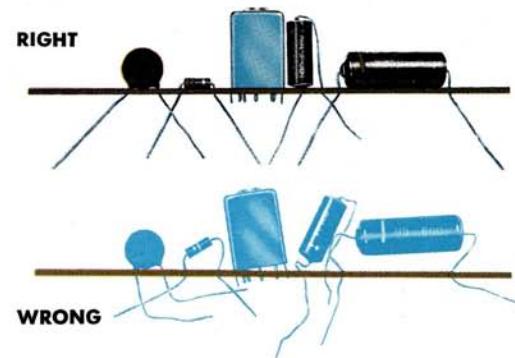
## *How to identify parts*

The kit builder's guide has detailed information on the often-used parts such as resistors and capacitors . . . what the different types look like, what they are called, and how to identify their values. Your kit's assembly manual contains a parts list complete with accurate drawings of the parts to permit you to become familiar with each part before assembly begins.



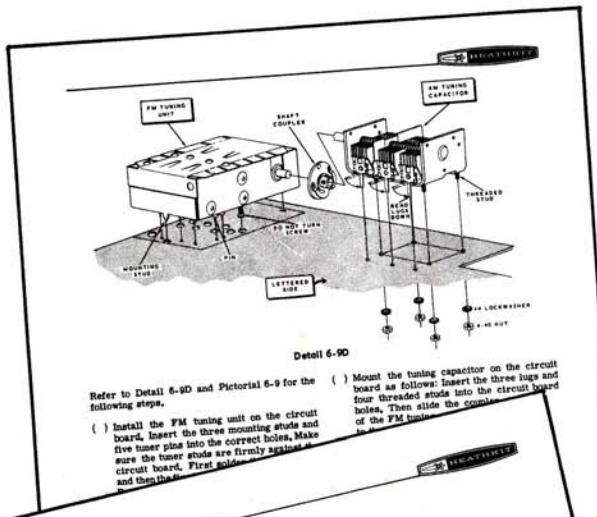
## *How to install parts*

Photographs and drawings in the kit builder's guide show you the right way (and the wrong way) to install parts on circuit boards and "point-to-point" circuits. And your assembly manual has giant fold-out pictorials and greatly enlarged detail drawings that show location and proper installation for every single part.





# famous assembly manuals . . .



Refer to Detail 6-9D and Pictorial 6-9 for the following steps.

( ) Install the FM tuning unit on the circuit board. Insert the three mounting studs and five tuner pins into the correct holes. Make sure the tuner studs are firmly seated in the circuit board. First solder the tuner pins, then the circuit board. First solder the tuner pins, then the circuit board.

## OPERATION

### INTRODUCTION

The AR-15 Receiver operates from any 105-125, or 210-250 volt 60 Hz AC power source. All controls are clearly marked and are accessible from the front. Connections to Speaker Systems, Antennas, and Auxiliary Equipment are clearly marked and are made at the rear of the chassis.

Primary Controls and Switches. Figure 3-1 (fold-out from Page 94). Secondary Controls and Switches. Figure 3-2, and Meters and Indicator Lamps. Figure 4-3 (fold-out from Page 147).

The Normal Operation Program Reproduced Chart (fold-out from Page 148) shows the type of audio output obtained from different types of switch positions.

Refer to Figure 3-1 and preset the switches and controls as follows:

- ( ) POWER: OFF.
- ( ) SPEAKERS: ON.
- ( ) LOUDNESS: OFF.
- ( ) NOISE FILTER: OFF.
- all--

#### AM OPERATION

The following procedure will help you adjust the operating controls of your AR-15 Receiver to you will realize the utmost enjoyment from its operation.

( ) Place the POWER switch in the ON position. Then tune in a local AM broadcasting station. Tune for maximum deflection of the pointer of the SIGNAL meter.

( ) Turn the L.A./FM Level control clockwise to obtain the desired sound output from the left channel speaker.

( ) AM/FM Level control clockwise output is obtained

NOTE: Do not change the setting of the VOLUME control again until after the PHONO and UXK (auxiliary) Level controls have been adjusted. Perform all of the adjustments in the sequence listed. If the following pages do not change the settings of any controls or switches unless you are directed to do so.

Refer to Figure 3-2 for the following steps.

( ) Turn the ten slotted-shaft L and UXK Level controls, and the PHASE SQUELCH control, behind the hinged door on the front panel, to their full counter-clockwise positions.

## Step-by-step instructions show what to do and how to do it

The world-famous Heathkit instruction manuals, recognized by leading authorities as the best of kit construction manuals, are written in clear, everyday language for all to understand, language that leaves nothing to question.

Step-by-step instructions, accompanied by large illustrations, show where each part goes and exactly how it is to be installed. A check-off system shows when each step is completed. A "solder-no solder" note at each step tells when and when not to solder and how many parts should be present at each solder point . . . a further safeguard against error. When more than one part is involved in a step, greater explanation and illustration is given for complete understanding.

Years of refining the technique of writing the famous Heathkit instructions have made them a model of clarity . . . lucid, simple to understand . . . error-free. All that's required is the ability to read. Proof of their effectiveness are the thousands of beginners who successfully construct even technically complex kits such as Heathkit color TV's!

## complete operating instructions

Once your kit is complete, another section of the Heathkit manual comes into use. You'll find complete instructions on how to operate your kit to get the utmost in performance, to utilize all its features, and how to connect it to other equipment for greater versatility. Everything explained and illustrated to enable you to get the greatest enjoyment from your equipment.

# like having a master teacher at your side

## What to do in case of difficulty — how to do your own servicing

What do you do if your kit doesn't work the first time, or if it needs servicing sometime in the future? A comforting and valuable section of your kit's manual is headlined "In Case of Difficulty." If you have a problem, this section tells you how to pin-point the problem and solve it. Perhaps as satisfying as building your kit is being able to service it yourself should it ever be needed . . . and it saves money too!

## circuit description — theory of operation

You don't have to read this section of your instruction manual to successfully build your kit. But, owners often find that it adds to the satisfaction of building their kit to understand how it works. And many builders value this section above the others for it adds to their fund of knowledge, expands their horizons to encompass new concepts.



### IN CASE OF DIFFICULTY

NOTE: Refer to the Kit Builders Guide for Service and Warranty Information.

#### INTRODUCTION

This page contains a brief description of the kit and the components that could cause each difficulty. The following pages list specific difficulties that could occur in your Receiver. Several possible causes are listed for each difficulty.

A.

B.

C.

D.

#### TROUBLESHOOTING CHARTS

The Troubleshooting Charts on the following pages list specific difficulties that could occur in your Receiver. Several possible causes are listed for each difficulty.

Refer to the X-Ray Views of the circuit boards (Page 203) and to the Chassis Photographs on Pages 204 and 209, and to the Schematic (folded out from Page 213), to locate and identify the parts listed in these charts.

#### AMPLIFIER AND POWER SUPPLY CIRCUITS

TEST No.	CONDITION	AREA OF DIFFICULTY	POSSIBLE CAUSE
1.	Receiver completely dead.	Power supply circuit.	1. Blown fuse. 2. Open line cord or On-Off switch. 3. Faulty power transformer.
2.	Pilot lamps on, but no sound. Output transistors overbiased. Hi-TEMP lamp not on.	Power supply circuit.	1. Open Hi TEMP lamp. 2. Transistor Q503 open. 3. Diode D505 open.
3.	Pilot lamps on but no sound.	Speaker switch.	1. SPEAKER switch turned OFF. 2. Refer to the Stage-By-Stage



### CIRCUIT DESCRIPTION

#### AUDIO CIRCUITS

Resistor and capacitor numbers (1-299) in the audio circuits are further divided so that the odd numbers are in the left channel circuits, and the even numbers are in the right channel circuits. An exception is made for resistor R10 and capacitors C11 and C12 in the phone preamplifier, and resistor R125 and capacitor C131 in the control preamplifier. These parts are common to both channels. R10 and C11 filters the supply voltage.

Transistors in the audio circuits are designated L (left) and R (right). For example, Q201L in the left channel circuit is identical to Q201R in the right channel circuit.

The left and right channel audio circuits are identical in operation, so only the left channel circuits will be described. To match the de-

scription of a circuit in the right channel, find the same transistor number with an R suffix and the same capacitor with the next higher even number. For example: transistor Q11, resistor R5, and capacitor C3 in the left channel would have counterparts as Q11, R6, and C4 in the right channel.

#### PHONE PREAMPLIFIER

The signal from a magnetic phone cartridge is coupled through the Phone input jack, resistor R21, and capacitor C1 to transistor Q11. This is a high gain, low-noise amplifier. The amplified signal at the collector of Q11 is direct coupled to the base of Q21. After further amplification in Q21, capacitor C7 couples the



*... provides the extra service that*

## ***Fully Warranted***

Heath has a reputation for protecting its customers . . . a reputation earned by making sure its customers are completely satisfied.

Heath guarantees all parts in its kits for 90 days and all factory assembled products' specifications for one year . . . you'll find the warranty in the manual for each unit.

But the intent of a manufacturer means much more than the mere printed words of a warranty. The people at Heath are renowned for their extra efforts to keep customers happy . . . an attitude apparent in all departments . . . motivated not just by business ethics, but personal ethics as well . . . and, of course, a real desire to keep you as a customer. You'll find Heath easy to do business with . . . just ask one of our customers . . . and then discover for yourself what it's like to be a really satisfied customer.

## ***Technical Assistance***

Heath maintains a staff of experienced electronic consultants just for you. These men stand ready to answer your every question . . . about which kits to choose for your needs . . . how to use them . . . assembly . . . performance. Whatever your question, these men can answer it . . . it's a free service just for you. Just call, or write, the Heath Technical Correspondence Department or your local Heathkit Electronic Center . . . you'll find they are wizards at solving your problem.



***assures your success and complete satisfaction***

### ***Expert Service***

If you ever need it, getting your Heathkit equipment serviced is easy. Service departments are maintained at the factory and all local Heathkit Electronic Centers (see the listing in your catalog). Factory trained technicians, complete testing facilities, and factory replacement parts are ready at all locations to help you on both in-warranty and out-of-warranty servicing. No charge is made for in-warranty parts. Service charges are nominal and standard at all locations.



### ***Time Payments***

Convenient time payment plans are available at the factory and your local Heathkit Electronic Center. Enjoy your Heathkit equipment as you pay . . . terms are easily arranged to fit your budget.





*... shows you how to select your*

### ***Choose a beginner's kit***

If you approach your first kit building experience with some trepidation, you may be wise to choose one of Heath's beginner kits. They are designed to appeal to different age groups, give you all the elements of kit building, go together quickly, function in the superior manner customary with Heathkit equipment and are low in cost. Some examples of such kits are shown on the opposite page. Other suggestions might include smaller accessory items. Whatever you choose, be assured you can build it . . . we know you can, you just have to prove it to yourself yet.

### ***or a home entertainment kit***

If you have more confidence in your ability to build a kit, you may elect to begin with a larger kit. Here you will find a wide variety to select from . . . stereo components . . . am-fm-clock table radios . . . intercoms . . . yes, even a color tv or an electronic organ. While building a color tv may seem a rather formidable task, it is true that many of our color tv sets have been built by beginners. Building a color tv really isn't any more difficult, it just takes longer because there are more parts. The wider choice is yours . . . and we stand ready to help in every way.

### ***or a special hobby kit***

If you have a special hobby, you'll find many more kits to choose from to extend the enjoyment of your chosen leisure time activity. Perhaps it's shortwave listening, working in your photographic darkroom, or hunting and fishing. Perhaps you are a Saturday morning auto mechanic, or an amateur radio operator. Whatever your special interest, chances are you'll find a kit in the Heath line to make it more interesting.

## *first kit*



**Portable Radios** . . . these make good beginner kits for they are easy to build, perform well, and cost little. You can choose a simple AM model or more advanced models that receive AM & FM, police & fire, or aircraft broadcasts.



**Solid-State Phonographs** . . . these are simple to build and sound like they should cost much more. Choose from either deluxe or economy models . . . both come with factory assembled automatic record changers.

## *beginner kits*



**Junior Kits for Youngsters** . . . whether you want to get your children started in electronics or you want to build something for them as a gift . . . there's a series of kits to choose from including experimenter labs, a phono, even a guitar amplifier.



**Special Accessories** . . . such as a Metronome for your budding pianist, a speaker system, a small meter for use around the home and future kit building . . . there are a number of these smaller kits which can be assembled in an evening and provide years of enjoyment. Check your Heathkit catalog.

# *home entertainment kits*



**Stereo Components** . . . one of Heath's most famous lines . . . world renowned for quality and value. Choose a stereo receiver, tuner, amplifier or speaker. They come in all sizes and price ranges, from the simplest to the most advanced in technology . . . and there's one just right for you.



**Compact Stereo** . . . in the trend to complete stereo systems in small packages, but with a difference! Heath puts quality stereo components into its compacts . . . result: component-compacts. Select your model now . . . they sound as good as they look . . . and are the best values in stereo.



**Table Radios** . . . who ever has enough in the house? And Heath has a complete line of AM and AM-FM models with and without clocks in smart decorator-color cabinets . . . there's one just right for that room of yours that needs a radio. And you'll find they are superior in sound too. Choose yours.



**Color TV** . . . the famous Heathkit line . . . recognized by experts as the finest in picture and sound quality . . . lowest in service requirements . . . the first and only color TV kits designed especially for quality home TV entertainment. Several models to choose from . . . all with built-in self-servicing aids . . . for cabinet or wall installation.



**Electronic Organs** . . . to complete your home entertainment facilities . . . handsome, solid-state designs by Thomas produced in kit form by Heath . . . versatile voicing, startling percussion, easy to play . . . and you'll save hundreds of dollars by building it yourself. Choose your favorite model now . . . your family will love it.

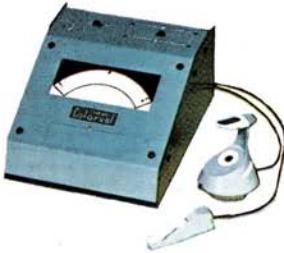
# special hobby kits



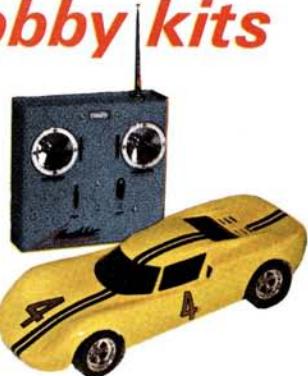
**Amateur Radio** . . . the world-wide hobby that offers daily opportunities to talk to people of many lands, be of aid in moments of crisis, explore new technologies. A little study will yield a license to operate, building a kit will result in efficient equipment world famous for performance and value.



**Shortwave Listening** . . . a growing hobby among the politically aware that offers a chance to hear first-hand what is happening everywhere in the world. You'll find several models in your Heathkit catalog, from professional types to handy portables . . . all capable of keeping you up to date.



**Photographic Hobby** . . . one of the most popular hobbies . . . offering a medium for expressing your high creativity . . . and Heath has several kits to help in your darkroom work. Computers for perfect B&W and Color prints . . . electronic timers . . . color processing trays . . . standards . . . acclaimed by both professionals and amateurs.



**Radio Controlled Models** . . . the fast growing hobby with high excitement . . . participants are people of all ages from all walks of life who enjoy the construction and operation of life-like performing models . . . and Heath has superior radio equipment kits at lowest cost to control cars, boats, and planes.

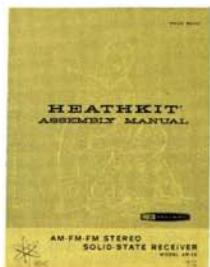


**Automotive Enthusiasts** . . . whether you just enjoy keeping the family cars in top running condition or are a sports car buff . . . you'll find Heathkit equipment a great help . . . choose tachs, ignition analyzer 'scopes, timing lights, tune-up meters . . . they're easy to build and use, low in cost.



**Outdoor Sports** . . . are more fun with the right equipment. The Heathkit Trail & Snow Bike adds exciting mobility to hunters and fishermen. The Heathkit Fish Spotter shows you where the big ones lurk. And there's a wide range of Marine kits to help boaters communicate, find directions and depths.

**Convince Yourself How Easy It Is . . .**  
**Order A Manual . . . Its Cost Is Refunded**  
**When You Order The Kit**



Each manual costs \$2 postpaid except EK and EF series are \$5. Just list the model number and write "Manual Only" on the order blank; its price will be credited to your account when you order that specific kit (just return the invoice with your kit order). Specification-schematic sheets are free and available for most kits; write to Heath Customer Correspondence Dept. or see your local Heathkit Electronic Center.



# ...answers to typical questions

## How much do I need to know about electronics to build a kit?

You don't need to know anything about electronics to be a successful kit builder . . . we show you how to do everything in a simple, nontechnical way.

## I've never built anything, how can I be sure I can build a kit?

We think you can because thousands just like you have, but if you have doubts, choose a beginner's kit . . . it will give you a chance to explore the idea without much cost.

## How much time does it take to build a kit?

The length of time depends upon the size of the kit and the pace with which you work. A small kit such as a portable radio may take only a couple of evenings, a larger kit such as a color TV may take a couple of weeks of evening work.

## How do I choose my first kit?

Choose one you'd like to have, keeping in mind your judgment of your abilities. Nearly every kit we sell has been built by beginners.

## I've never used a soldering iron, how do I learn?

The kit builder's guide included with each kit shows exactly how to do it correctly.

## What tools do I need?

A couple of different sizes of screwdrivers, long nose pliers, diagonal cutter, and a soldering iron are basic. For greater convenience, we recommend using a wire stripper and a set of nut drivers.

## What kind of soldering iron should I get?

You can choose a small soldering iron of the pencil-type, about 25 to 30 watts, or purchase the Heathkit selectable-heat soldering iron, model GH-17A. Do not use a soldering gun; they usually have too much heat to use on circuit board work.

## Where can I learn about new kits being added to your line?

Once you become a customer you will receive all Heathkit literature which contains information on new kits added each month. If you are not a customer, send for a free Heathkit catalog or watch the Heathkit ads in the music, mechanics, and electronics magazines, or visit any of the Heath Electronic Centers in major cities and ask them, "What's New?"

## How do I go about choosing the right components for a stereo system?

See the chart in the Heathkit catalog, it shows which components are correct for each other in style, performance and

price. If you need further help, write to the Heathkit Technical Correspondence Department, or visit your nearest local Heathkit Electronic Center.

## I have a pair of speaker systems and a turntable not sold by Heath; will your Heathkit AR-15 stereo receiver work with other brands?

All Heathkit stereo equipment will work with other makes of components if they have the proper impedances, etc. Tell us the brand and model numbers of your other components, we probably will be able to tell you for sure. Write to the Heath Tech. Correspondence Department, or visit your nearest Heathkit Store.

## Do you have additional information on your advertised products?

We have schematic-specification sheets on nearly all of our products. Tell us what model you are interested in.

## Can you tell me how to modify one of your kits for a different use?

Sorry, we must decline this time. We cannot recommend any modifications other than those offered by Heath. While other modifications may work all right, the design must be yours. Also such modifications invalidate your warranty.

# *asked by first-time kit builders*

I'm thinking of buying a complete set of Heathkit components for a stereo system, what is your discount?

We offer a 5% discount for stereo systems. If you order a separate tuner and amplifier and a pair of speakers; or a receiver, turntable and pair of speakers; or a stereo compact and a pair of speakers; you may subtract 5% from the total price.

**How long after you obsolete a kit are parts available?**

Heath will supply electrical parts for 7 years and styling and trim parts for 2 years after a kit is discontinued.

I would like to see your stereo cabinets before buying, where can they be seen?

You may visit the factory sales room in St. Joseph, Michigan, or any of the local Heathkit Electronic Centers in major cities.

**Do you offer a time payment plan?**

Yes, time payment plans are available at both the factory and local Heathkit Electronic Centers.

I live in a fringe area, what antenna should I buy for TV and FM?

A good guideline is to buy the most sensitive model you can afford and you can judge which these are by the number of elements they have.

**Are your new tuners compatible with your older stereo amplifiers?**

Yes.

**I ordered a record changer and can't decide what cartridge to buy; any suggestions?**

See the chart in the Heathkit catalog for cartridges recommended.

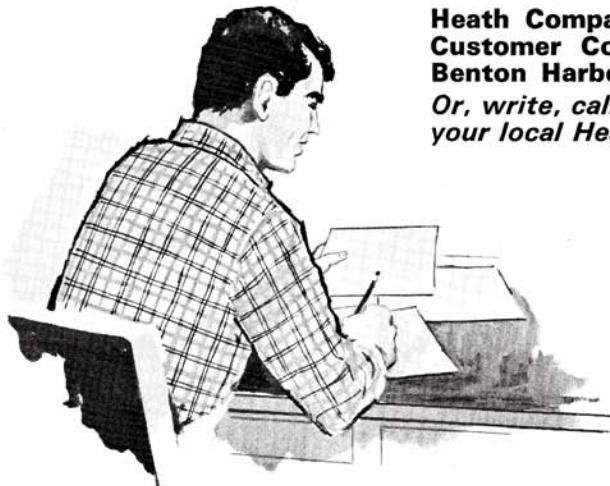
**What shipping method should I specify?**

It depends upon your local situation; we ship by all methods and will use the method you indicate or we will select one if you choose. Most kits 40 lbs. or under can be shipped Parcel Post, a universal and economical method. Over that weight we will ship Express or Motor Freight, and you don't have to figure shipping costs on these methods as charges will be collected by the carrier at the time of delivery.

*If you have a question we haven't answered, write to:*

**Heath Company  
Customer Correspondence Department  
Benton Harbor, Michigan 49022**

*Or, write, call or visit  
your local Heathkit Electronic Center*





*... world famous*

*in electronic engineering*

## **Famous Heathkit® Firsts**

- First to offer kits with all required parts included.
- First to use "Check-By-Step" instructions in assembly manuals.
- First kit manufacturer to provide calibration and adjustment procedures.
- First to use fold-out pictorials in assembly manuals.
- First to incorporate soldering instructions that use the "(S-1)" double-check system in assembly manual.
- First kit manufacturer to screen values and part locations on kit circuit boards.
- First kit manufacturer to own patents on new circuits.
- First in the high fidelity industry with Amplifier Rating Standards.
- First Transistor Shortwave Receiver Kit.
- First Transistor AM/FM/FM Stereo Receiver Kit.
- First Marine Depth Sounder Kit.
- First High Performance, Self-Aligning Amateur Radio Receiver Kit.
- First Citizen's Band Transceiver Kit.
- First Linear Tuning, 1 kc Calibration, Amateur Radio Kits.
- First Successful Color TV kit.
- First Ignition Analyzer Kit.
- First Crystal Filter Kit for Amateur Radio Gear.
- First HV Regulated and Solid-State Regulated LV Power Supply Kits.

- First Impedance Bridge Kits.
- First Analog Computer Kit.
- First Vacuum Tube Voltmeter, Oscilloscope, & Lab Instrument Kits.
- First Automatically Sequenced Fog Horn Kit.
- First Color Bar & Dot Generator Kit.
- First Transistor Portable Radio Kit.
- First Williamson Hi-Fi Amplifier Kit.
- First Transistor Stereo Amplifier and Tuner Kits.
- First Alignment Generator with Electronic Sweep Circuit.
- First Photographic Aid Kits.
- First to use Integrated Circuits in kits.
- First with crystal filters in stereo receivers.
- First trail and snow bike Kit.
- First photo-electric tachometer for R/C modelers.
- First 4-band radio direction finder.
- First depth sounder with noise rejection circuitry.
- First kit manufacturer to build a pretuned FCC type accepted Radiophone for outboard installation.
- First kit manufacturer to utilize voltage sensing for fuel vapor detectors.
- First kit manufacturer to offer a graduate level electronic teaching system for chemists, M.D.'s, etc.

# ... world leader in electronic kits

**THE STORY OF HEATH.** Edward Bayard Heath founded the Heath Aeroplane Company during the early 1900's. In 1926 he produced an airplane in kit form—the famous Heath "Parasol." For years this light aircraft was a favorite in the flying fraternity. Mr. Heath was killed during a test flight in 1931, marking a tragic end to a brilliant career. From that point through World War II, the Heath Company remained in the aircraft and replacement part business.

Shortly after World War II, the character of the Heath Company changed. An ambitious engineer named Howard Anthony, who had purchased the Heath Company in 1935, took a calculated gamble. The ingenious Mr. Anthony bought a large stock of surplus wartime electronic parts, designed and "mail order marketed" an oscilloscope for \$39.50.

Mr. Anthony based the success of his idea on the premise that anyone, regardless of technical knowledge or skills could assemble a kit himself, and save up to 50% over comparable factory-built models. All that would be required were a few simple hand tools and some spare time.

Orders poured in for the oscilloscope kit, and the foundation for the Heath Company as it exists today was established. Mr. Anthony expanded his test instrument line and soon added amateur radio and hi-fi component kits.

Tragedy struck again in 1954 when Howard Anthony was also killed in an airplane crash. Daystrom, Inc. then acquired the Heath Company. In 1962 Daystrom, Inc. was purchased by Schlumberger Limited, a leader in the development of electronic techniques for oil exploration.

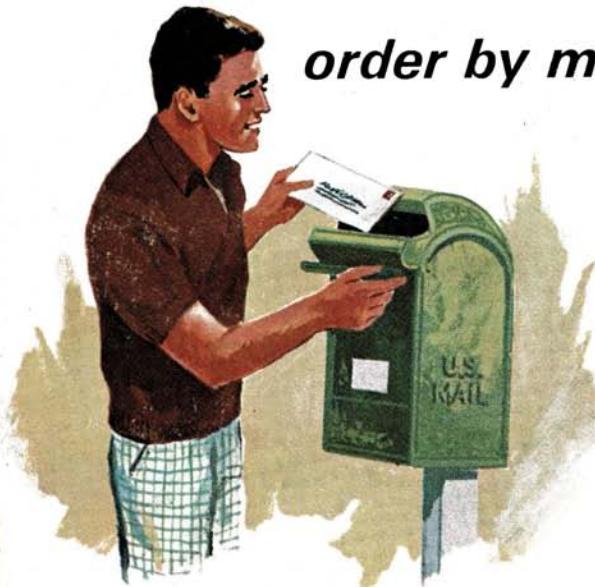


Since 1954, more kit products have been added until at present Heath boasts 14 different product lines, consisting of over 300 kits . . . the world's largest selection.

In order to produce the vast array of Heathkit equipment, a modern 383,000 sq. ft. plant was constructed on the shores of Lake Michigan in St. Joseph, Mich. If you are planning a visit to Michigan, we invite you to stop in and pay us a visit. We're located on Hilltop Rd. just off Business route I-94, south of St. Joseph.

*start today*

*order by mail . . . or visit your Heathkit® Store*



*Join the creative people  
who build Heathkit electronics.  
It's the exciting leisure-time way  
to superior equipment at lower cost.*